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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/950,041	09/10/2001	Gerard T. Hardiman	DX0724XK1	2187

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EXAMINER
HAMUD, FOZIA M

ART UNIT	PAPER NUMBER
1647	11

DATE MAILED: 07/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

File copy

Office Action Summary	Application No.	Applicant(s)	
	09/950,041	HARDIMAN ET AL.	
	Examiner	Art Unit	
	Fozia M Hamud	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *2-7 and 9-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, and SEQ ID NO:12, in Paper No. 10, filed on 13 May 2003 is acknowledged. The traversal is on the grounds that a search for the polypeptide of Group I would also reveal art pertinent to the nucleic acid of Group II and to the antibody of Group III. Applicants also contend that if the polypeptide of Group I is found patentable, then a nucleic acid encoding it and antibody that specifically binds it are also patentable. Applicant also expressly reserve the right to file divisional applications to the presently non-elected subject matter.

This traversal has been fully considered but is not deemed persuasive. The inventions of Groups I-III are drawn to patentably distinct inventions and are classified in different classes and sub-classes and each distinct subject has attained recognition in the art as a separate subject for inventive effort, and also a separate field of search, (MPEP § 808.02). Also, contrary to Applicants' assertion a single search would not reveal art pertinent to all of the recited inventions. Thus, searching more than one product would pose undue burden on the Examiner. Furthermore, the Examiner does not dispute that if the polypeptide of Group I is found patentable, then a nucleic acid encoding it and antibody that specifically binds it are also patentable, only that these are patentably distinct inventions.

Applicants' reservation of the right to file divisional applications or take such other appropriate measures deemed necessary to protect the inventions in the remaining claims is noted.

The requirement is still deemed proper and is therefore made FINAL.

The elected invention is Group I (claims 1 and 8, and SEQ ID NO:12). Therefore, claims 2-7, 9-22 are withdrawn from prosecution as being drawn to a non-elected invention.

Information Disclosure:

2. References AE, AQ, AR, AS, AT, AU, AV, AW, AX, AZ, BD, BE, BF, BI, BJ, BK, BL, BN, BP and BR, cited in the information disclosure statement filed on 06 May 2002, in Paper NO.7, have not been considered, because, the relevance of these references to the elected invention of the polypeptide of SEQ ID NO:12 is not clear. These references disclose nucleotide sequences and amino acid sequences, however, a search for SEQ ID NO:12 and SEQ ID NO:13 of the instant Application against commercial data bases did not bring up any of these references. Applicants must kindly indicate the relevance of these references to the claimed invention.

Specification:

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The BRIEF DESCRIPTION OF THE DRAWINGS should be placed between the summary of invention and detailed description of the invention.

Claim objections:

3. Claim 1 is objected to because of the following informalities:

Claim 1,recites non-elected SEQ ID Nos. Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 101/112

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4a. Claims 1 and 8 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

Claims 1 and 8 of the instant invention are directed to an isolated polypeptide comprising the amino acid sequence of SEQ ID NO:12 or an antigenic fragment thereof or an a natural allelic variant of said polypeptide.

The specification describes the claimed polypeptide as being one of nine novel mammalian receptors, Toll receptor like molecular structures. Instant specification designates the

claimed polypeptide as TLR6 (SEQ ID NO:12), (see page 6, line 24). Instant specification states that the Toll like receptors of the instant invention will have a number of different biological activities, including phosphate metabolism, adding or removing phosphates from specific substrates, which will generally result in modulation of an inflammatory function, and other innate immunity responses or morphological effects, (see page 17, lines 16-30). The specification, also asserts that the claimed invention should provide therapeutic values in various diseases or disorders associated with abnormal expression or abnormal triggering of response to the ligand. The specification submits that Toll ligands have been implicated in morphologic development, e.g, dorso-ventral polarity determination and immune responses, (page 46, lines 6-31).

Instant specification does not disclose any information regarding physiologic or functional characteristics of the claimed polypeptide. The claimed polypeptide has never been expressed, no biological activity was assayed or determined for it, and only a deduced amino acid sequence and general methods of expressing recombinant proteins and general ligand binding assays are disclosed. From the teachings of the instant specification, it is unclear exactly what is the asserted activity of the claimed polypeptide. The specification does not disclose which substrates does the claimed polypeptide remove or add phosphates to, and what are consequences of said action. The specification also speculates that because of the homology of the cytoplasmic domain of the Toll receptor domain to the IL-1 receptor, assays sensitive to IL-1 receptor activity may be suitable for measuring activity of TLRs, (page 70, lines 9-12). However, the specification does not disclose a specific ligand for the claimed polypeptide nor does it disclose a specific biological activity for the polypeptide of the instant invention.

To date there are ten members of the Toll-like receptor family (TLR1-10). Takeuchi et al disclose a human and murine TLR6, a novel member of the Toll-like receptor family, (see Takeuchi et al, gene, volume 231, issues 1-2, pages 5-65, April 1999). The human TLR6 disclosed by Takeuchi et al comprises 796 amino acids residues, and the murine TLR6 disclosed by Takeuchi et al comprises 807 amino acid residues. The TLR6 of Takeuchi et al, (which is art recognized as TLR6), shows features of type 1 transmembrane proteins, shares remarkable homology to IL-1R, and activates NF-kB *in vitro*, as well as c-jun N-terminal kinase, (see Takeuchi et al page 61).

While the instant specification designates the claimed polypeptide of SEQ ID NO:12 as TLR6, it discloses no activity for it and no ligand for it. TLR family members are expressed differentially and appear to respond to different stimuli, for example TLR4 recognizes LPS while TLR2 recognizes lipoproteins and glycoproteins present in bacterial cell walls, (see Akira et al, Nature Immunlogy, Vol.2 (8), pages 675-680, August 2001, especially page 676). Therefore, without knowing the endogenous ligand or stimuli for the claimed polypeptide, one of ordinary skill in the art would not know how to use it.

Furthermore, while, the instant specification asserts that the claimed polypeptide can be used therapeutically, and discloses conventional protein and nucleic acid administration techniques, it does not disclose specific disorder which can be treated or diagnosed using the claimed polypeptide. The specification establishes no connection between any physiological condition or disorder and the protein of the instant invention, i.e., is the claimed polypeptide over expressed, under expressed or completely lacking in any disorder?

Therefore, the claimed invention is directed to a polypeptide of as yet undetermined function or biological significance, therefore, unless Applicants demonstrate the physiological significance or the biological role of the polypeptide of the instant invention, the claimed invention is not supported by either a specific and substantially asserted utility or a well established utility.

4b. Claims 1 and 8 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a substantially asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. Instant specification does not define the physiological role of the claimed polypeptide, neither does it establish a link between this protein and a disease or a physiological condition. Therefore, there is no specific and substantial asserted utility or well established utility for the claimed nucleic acid or the encoded protein. The specification discloses only the sequence of the claimed polypeptide, and that is insufficient to establish a specific or substantial utility for the claimed invention.

Should Applicants establish an activity for the polypeptide of SEQ ID NO: 12, instant specification would still fail to adequately describe and enable an allelic variant of the polypeptide of SEQ ID NO: 12 or an antigenic fragment thereof. Applicants do not provide a written description for an allelic variant of the polypeptide of SEQ ID NO:12, nor do they describe which regions of the claimed polypeptide are critical for the antigenic activity of said polypeptide. With respect to claims 1 and 8, instant specification does not define the structure of an allelic variant or a fragment of the claimed polypeptide. The skilled artisan would not be able to visualize the structure of said variant or a fragment. Vas-Cath Inc. V. Mahurkar, 19

USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116). Furthermore, In The Reagents of the University of California v. Eli Lilly (43 USPQ2d 1398-1412), the court held that a generic statement which defines a genus of nucleic acids by only their functional activity does not provide an adequate written description of the genus. The court indicated that while Applicants are not required to disclose every species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of DNA molecules, usually defined by a nucleotide sequence, falling within the scope of the claimed genus. At section B(1), the court states that "An adequate written description of a DNA...'requires a precise definition, such as by structure, formula, chemical name, or physical properties', not a mere wish or plan for obtaining the claimed chemical invention".

Therefore, instant specification does not describe the structure of an allelic variant or an antigenic fragment the claimed polypeptide, to satisfy the written description provision of 35 U.S.C. 112, first paragraph.

Claim rejections-35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the isolated polypeptide" in line 1, however, there is insufficient antecedent basis for this limitation in the claim. It is suggested that claim 1 be amended to recite "an isolated..". Appropriate correction is required.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, so long as it depends on claim 1 for the limitation set forth directly above.

Conclusion

No claim is allowed.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fozia M Hamud whose telephone number is (703) 308-8891. The examiner can normally be reached on Monday, Wednesday-Thursday, 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (703) 308-4623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4227 for regular communications and (703) 308-0294 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Fozia Hamud
Patent Examiner
Art Unit 1647
July 28, 2003

Gary L Kunz

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